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Case Report: Nasal Cavity Dermoid Cyst A Rare Presentation and Surgical Excision

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ABSTRACT

The patient is a 59-year-old female presenting with nasal obstruction and dysphagia, accompanied by nasal masses upon examination. A dermoid cyst, a rare benign tumor often consisting of various tissues such as skin, hair, or sebaceous material, was diagnosed in the nasal cavity. Dermoid cysts in this region are infrequent, making this case particularly significant to existing medical literature. The clinical suspicion of a dermoid cyst was raised based on the patient's symptoms and confirmed by imaging modalities like CT scans. The patient underwent surgical excision of the cyst, followed by histopathological analysis. Post-surgery, the patient had an uneventful recovery with no signs of recurrence. This case emphasizes the importance of early detection and surgical intervention, leading to a positive prognosis and an improved quality of life without recurrence during follow-up.

1. INTRODUCTION

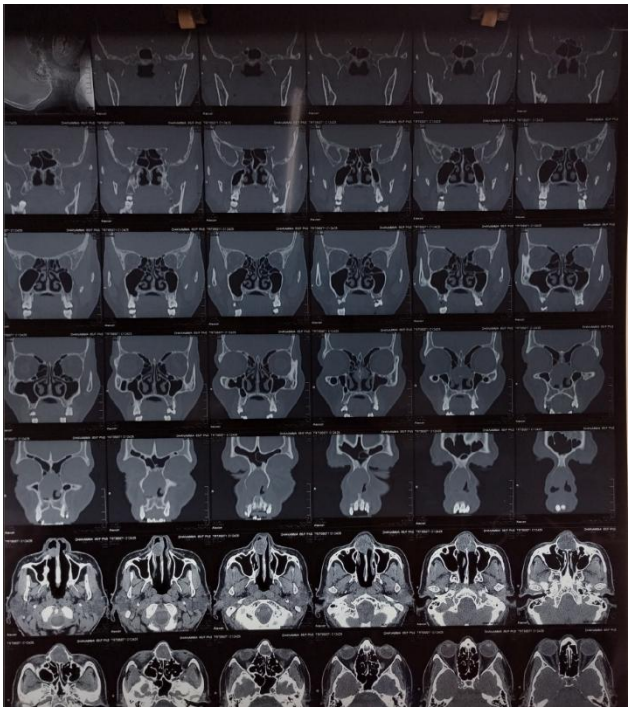
A nasal dermoid cyst is a rare congenital lesion caused by developmental anomalies during embryogenesis, typically due to incomplete closure of the neural tube or failure of skin and tissue separation. These cysts are most commonly found on the scalp, face, or neck but are exceedingly rare in the nasal cavity. While such cysts are often diagnosed in children or adolescents, this case highlights a dermoid cyst in an adult patient with no previous history of nasal lesions or tumors. The rarity of this presentation, along with its similar symptoms to more common nasal conditions, made early diagnosis challenging. Imaging techniques, particularly CT scans, played a crucial role in confirming the diagnosis, which was followed by successful surgical excision. Unlike most cases, where nasal dermoid cysts are small, this cyst was large enough to cause significant obstruction, leading to difficulty breathing and swallowing. The surgical approach utilized, a transnasal endoscopic excision, minimized risks and contributed to a smooth recovery. Early detection and surgical intervention, as demonstrated in this case, are critical for favorable outcomes and reducing the risk of complications or recurrence.[1]

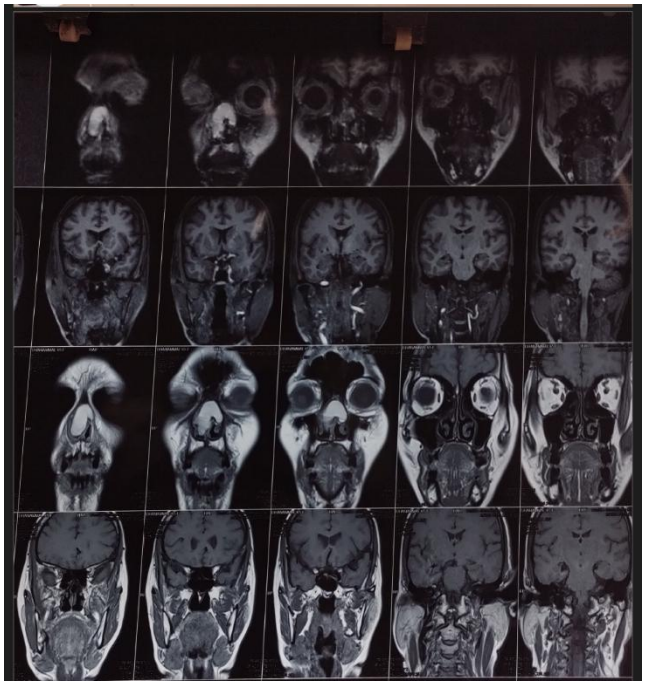
2. PATIENT INFORMATION

The patient, a 59-year-old female, presented with several complaints that had been bothering her for many months, including nasal obstruction, changes in voice, difficulty swallowing, and occasional earaches. These symptoms developed gradually and worsened over time, significantly affecting her daily life and prompting her to seek medical help. There was no history of trauma or pain in the nose, and the onset of symptoms was not immediate or triggered by environmental factors. The patient experienced nasal mass-induced obstruction and difficulty breathing, which were not typical for her age. The obstruction of the nose and subsequent voice changes indicated the complexity of this case. While nasal polyps and sinus inflammation commonly cause nasal blockage, the development of voice changes is not typical for sinus issues. The patient did not experience associated symptoms such as earache, facial pain, fever, or discharge, which are often seen with other nasal conditions. This absence of typical symptoms suggested that the condition was isolated to the nasal cavity. The nasal dermoid cyst in this case likely appeared de novo, as such cysts can develop over time and obstruct specific areas of the nose, leading to swelling. Notably, the patient had no family history or past medical conditions that could contribute to the development of nasal dermoid cysts. There were no signs of genetic predisposition, drug use, or smoking, and no prior medical treatments or interventions had been administered. The patient had no history of nasal problems or surgeries, and the appearance of the nasal dermoid cyst was entirely de novo.[2]

3. CLINICAL FINDINGS

The primary finding during the physical examination was the presence of a soft, non-tender, firm mass in the right nasal cavity. This mass was identified during the inspection phase and further evaluated upon palpation. It was well-circumscribed and non-tender, with no evidence of erythema or induration, which are often associated with inflammation or malignancy. The lack of tenderness or pain upon palpation suggested a benign etiology, as malignant lesions are typically tender, painful, or associated with other symptoms such as bleeding. The well-encapsulated nature of the mass and absence of signs of infection or significant tenderness were consistent with the characteristics of a nasal dermoid cyst, which are typically slow-growing and not painful unless secondarily infected or inflamed. The mass was located in the anterior part of the right nasal cavity, easily accessible and visible with a nasal speculum. It did not appear to be related to the nasal septum or bony structures, indicating that it was a soft tissue lesion rather than one involving the bone. The patient's symptoms of nasal obstruction and difficulty swallowing were likely related to the mass, which could obstruct airflow and put pressure on adjacent structures, including the nasopharynx. There were no signs of external rupture or drainage, supporting the benign nature of the lesion. Upon examination, the oral cavity, ears, and throat revealed no abnormal findings. The patient did not experience pain or discomfort in these areas, and there were no visible signs of infection or pathology in the mouth or throat, helping to rule out other potential causes of the symptoms such as chronic tonsillitis or pharyngitis.[3]



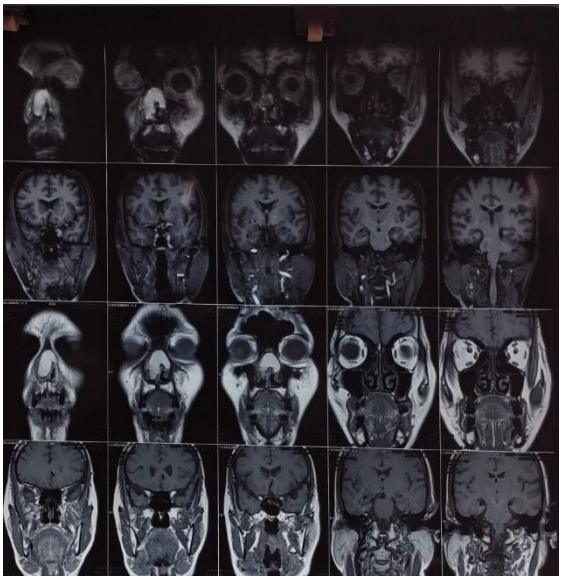


The MRI scans attached below are sets of coronal images that clearly capture the nasal cavity, sinuses, and parts of the skull and brain. The scans indicate a prominent and well-defined intranasal dermoid cyst, likely benign. The nasal dermoid cyst in question is a rare congenital growth. On the scan, it's appearance is as a well-circumscribed cyst in the nasal cavity, with a signal intensity distinct to dermoid cysts, and due to its nature, often contains tissue, oils, hairs, and sometimes teeth or bone. The cyst has clear margins, indicating a high chance of benignity. Its contained appearance indicates an encapsulated, slow-growing mass, often filled with a variety of tissue, including bone or teeth. The absence of surrounding inflammation and the fact that it's boundaries are regular support the diagnosis, as inflammations or malignancies would cause nearby tissues to also be involved and make the margins appear more jagged and irregular. The sinuses also show no involvement or signs of infection on the MRI images, which is particularly important as nasal dermoid cysts are known to at times spread or move into or even perforate sinus structures. This is important, as inflammation of the sinus walls, or an expansion of the cystic mass into the sinus walls would suggest that the growth is not limited to the nasal cavity. There is a clear area that the mass occupies on the scan, and no mention of tenderness or difficulty breathing when the nose is uncompressed indicates that the mass is removable without long-term effect. The upper section of the scan shows the area of the skull, and brain, and

shows no indication that the cyst had involved cranial cavities, or brain tissue, as at times with dermoid cysts, they do. In this case, a sharp and clear boundary of the affected area and mass, as well as the lack of surrounding tissue changes is a positive sign, as it means that the cyst has not caused significant changes to the surrounding structures. The attached scans were chosen as they best indicate the location of the mass and affected areas, being coronal images of the sinuses and nasal cavity. As the mass is most visibly located on the scan and the surrounding tissues appear normal, the scans indicate a positive surgical outcome and lack of long term complications.[4]

Historical and Current Information Organized as a Timeline:

- **6th June 2024**: Patient presents with nasal obstruction, difficulty swallowing, voice changes, and occasional ear pain. Initial examination suggests the possibility of a nasal mass.
- **9th June 2024**: Imaging (CT/MRI) confirms the presence of a **nasal dermoid cyst** in the right nasal cavity.
- **12th June 2024**: Surgical excision of the nasal mass with biopsy performed. The mass is carefully removed under general anesthesia. The procedure is uneventful, and the patient tolerates it well.
- **Post-operative (16th June 2024)**: Patient discharged after a successful surgery with no complications. Follow-up appointments scheduled for 1 week later.



4. DIAGNOSTIC ASSESSMENT

The patient presented with symptoms of nasal obstruction, voice changes, and difficulty swallowing. During the physical examination, a firm, non-tender mass was palpated in the right nasal cavity, which was obstructing the airway. The mass appeared well-circumscribed and did not show signs of erythema or induration, which typically suggest inflammation or malignancy.[6] There was no tenderness or pain upon palpation, further suggesting a benign etiology. This clinical finding raised the suspicion of a nasal dermoid cyst, which, though rare in the nasal cavity, can resemble more common conditions like nasal polyps or sinusitis, leading to diagnostic delays. To confirm the diagnosis, a CT scan was performed, revealing a well-defined, midline cyst characteristic of a dermoid cyst. Dermoid cysts are slow-growing, benign lesions that can cause nasal obstruction when large enough to impede airflow. They are more commonly found in children but can occasionally present in adults, often identified incidentally on imaging or when they become symptomatic. Other differential diagnoses, such as nasal malignancies, were ruled out due to the well-encapsulated nature of the mass and the absence of signs of malignancy, such as irregular borders or associated metastasis like facial swelling or weight loss. Additionally, nasal polyps and chronic rhinosinusitis were considered but excluded, as the mass was solid and well-defined compared to the soft, swollen appearance typical of polyps, and there was no sign of infection or fever that would point to sinusitis. The CT scan findings confirmed the presence of a dermoid cyst, and the patient's clinical symptoms were consistent with this diagnosis. The patient had been experiencing symptoms for several months, which contributed to the urgency of diagnosis and treatment. Post-surgery, the cyst was completely excised with clear margins, and the biopsy confirmed its benign nature. The patient reported complete resolution of symptoms at the one-month follow-up, with no recurrence of the cyst, aligning with the literature that suggests a low recurrence rate for fully excised dermoid cysts. The post-surgical prognosis is excellent, with no anticipated need for further intervention unless new symptoms arise.[5]

5. THERAPEUTIC INTERVENTION

The next step involved the surgical excision of the mass after it was discovered that it was a nasal dermoid cyst. The surgical approach was the preferred modality of treatment in this case due to the cyst's size, the discomfort it was causing, and the potential for the cyst to obstruct normal airflow in the nasal passage. Dermoid cysts in the nasal area are commonly treated with surgery to remove the cyst due to the risk of progressive obstruction, infection, or complications with surrounding structures such as the nasopharynx. The patient was informed of the potential risks and benefits of the procedure before giving consent to undergo surgery.

Excision of the cyst was done under general anesthesia, and the patient was comfortable throughout the procedure. The procedure was uncomplicated and was performed through a transnasal endoscopic approach, which is the standard approach to excising nasal dermoid cysts. The cyst was excised from the nasal cavity, and the team took care to ensure that the entire cyst was removed without any residual tissue that could have resulted in recurrence. A biopsy of the cyst was also obtained during the procedure to obtain histological confirmation of the diagnosis. The biopsy is important in this situation as it would help determine the nature of the mass, and if it was benign, it would also determine if the mass had any malignant features. The procedure was uneventful as the cyst was well-encapsulated and easily removed, with no evidence of infection in the incision site during the post-operative inspection.[7]

No significant modifications to the therapeutic plan were needed following the initial diagnosis. The treatment approach involving the excision of the cyst was consistent with standard medical practices for managing this type of benign lesion . The cyst was located in an area that was accessible for removal using a minimally invasive technique, so there was no need for more aggressive surgical techniques that might have required larger incisions or more extensive tissue removal. Dermoid cysts are generally managed well with surgical excision, and the lack of significant changes to the treatment plan is a reflection of the straightforward nature of the case.

6. FOLLOW-UP AND OUTCOMES

After the surgical intervention, the patient was kept in the recovery area for a short period to ensure that she was stable and responding positively to the surgery. The patient was discharged later the same day after being briefed on the importance of the post-operative care, which included plenty of rest, pain management, and follow-up appointments. The first follow-up visit took place one week after the surgery, and during this appointment, the patient reported a significant improvement in her condition. The nasal obstruction was less severe, and she no longer experienced any discomfort in the area where the mass was located. The patient did not experience any post-surgical complications, such as infection or swelling, and there were no signs of recurrence of the mass. This is consistent with the findings of previous studies, which have shown that nasal dermoid cysts do not recur when they are completely excised. The patient's clinical course can be described as prompt and uneventful, with a swift recovery from the surgery and no significant issues. The patient did not experience any complications or recurrence of the lesion during this early stage of follow-up. This is significant because early detection and treatment of such lesions are crucial to prevent any further complications, and in this case, it seems to have led to a favorable outcome.[8]

Upon discharge, the patient had been compliant with all of the post-operative instructions that had been provided by the surgical team. In particular, she was instructed to rest and avoid strenuous physical activity, as this could lead to increased risk of post-operative complications, such as bleeding or delayed wound healing. In addition, the patient was given antibiotics to prevent infection, as well as analgesics to manage any discomfort. The patient reported that she had followed all of these instructions and had not experienced any issues with the medications that had been prescribed. The patient's post-operative care primarily focused on hygiene and care of the surgical site, and she was satisfied with the instructions that she received .[11]

7. DISCUSSION

The study presented a nasal dermoid cyst, which is a rather rare disease in adults. The researchers stated the etiology of the case as being the incomplete separation of the ectoderm and endoderm tissue during fetal development. The researchers used surgical excision, which is the first-line treatment of dermoid cysts. Dermoid cysts are congenital, slow-growing, and benign in nature. The treatment is done to prevent or reduce symptoms such as nasal obstruction, dysphagia, and dysphonia. The therapy was successful with the patient recovering from the surgery, which concurs with literature on the subject. It has been reported in several studies that surgical excision of the dermoid cyst resulted in positive outcomes if the intervention was done early. This is the recommended line of action for affected individuals. In this case, it was possible to intervene early with the patient benefitting from this in terms of rapid recovery without any side effects or symptoms of recurrence.[9]

The only limitation of the study that can be identified is the failure to investigate the molecular or genetic etiology of the cyst. Despite it being benign, confirmed by imaging and biopsy, research into the genetic or molecular causes of this and other cystic pathologies can give clinicians and researchers a better idea of what causes such structures to develop. Although this might not be of much use to the affected patient, cases like this are very rare and could add to a more holistic understanding of such occurrences. As it is, some dermoid cysts are known to occur in association with other abnormalities and occasionally syndromes, and those with multiple cysts or other abnormal presentations are at risk of recurrence, which

may be avoided or detected early with a clear genetic or molecular marker for a predisposition to such cystic formations. The investigation of the cyst was limited to its clinical and imaging presentation as well as the histopathology of its biopsy and thus can be considered a limitation of the case.[10]

The literature on nasal dermoid cysts and similar pathologies clearly indicates the rarity of this presentation, even more so in an adult patient. In this article, as in many others, the case is shown to be more common in children or young adults. These pathologies are often detected in infancy or childhood and only last into adulthood in very rare cases. Dermoid cysts that are discovered in the nasal cavity of adults also often present with nasal obstruction as in this case or nasal deformity due to the cystic growth. The presentations are rare and the pathologies are benign in themselves, but the surgical intervention to remove them from the nasal cavity or other anatomical structures is a challenge and has to be executed with surgical precision to avoid damage to the area's soft and hard tissues. Transnasal endoscopic excision, the method of choice in this case, has been proven in many other similar presentations to be very effective in excising these cysts with only minor complications and even fewer incidences of recurrence.[12]

8. PATIENT PERSPECTIVE

Patient was very pleased with the results and her recovery from the surgery. She stated that she was able to feel more herself and function better after the excision of the dermoid cyst. The nasal obstruction and voice changes she had been experiencing had a big impact on her life, but these had resolved or improved significantly with the surgery. She could breathe through her nose much easier, and she no longer had voice changes, which she thought were due to the mass pressing against her nasopharynx and changing the resonance of her voice.[13]

She was also very happy that the surgery did not result in any problems, which had been one of her main fears leading up to the procedure. The patient stated that the aftercare was simple and that she had followed the instructions she received from the medical team closely. She had rested and taken the medications that were prescribed to her, and this enabled her to recover well. The patient was glad that there were no complications from the procedure, such as an infection or wound healing issues. Her general outlook on life and the future was also positive, and she believed that her health had improved as a result of the.[14]

Patient satisfaction with the results of the surgery and her recovery was a good indication of how successful the intervention had been. From her perspective, it had not only addressed the issues she was experiencing at the time but had also helped her to feel more like her old self. Patient's case was one example of how a surgical intervention, even one for a rare condition, such as a nasal dermoid cyst, can significantly improve a person's life in various ways.[15]

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